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(54) Title: ELECTRONIC SHOCK PROTECTION IN CODSETS AND ELECTRICAL DISTRIBUTION SYSTEMS

(57) Abstract

An apparatus and method for the avoidance of electrical shock in an electrical system. For a two wire appliance, the device consists of a current interrupting circuit that bidirectionally impedes current flow for short time intervals in each half cycle. If a fault to ground (24, 25) occurs during these short time intervals, an increased current flow through the plug (13) is detected and this is recognized as a fault, causing a circuit interrupter (18, 19) to open and removing current from the load (20) during the remainder of the half cycle. When the fault is removed, that event is detected within one half cycle and power is restored to the load (20). The apparatus can provide thermal control in the plug (13). The apparatus enables the use of a low current, low voltage switch (41) to control high voltages and high currents in the appliance. The apparatus can transmit fault status information or other information to a remotely located controller and can receive control signals from that remotely located controller. As used for electrical arc fault protection in an electrical distribution system, the invention is well suited for the retrofit of existing electrical distribution systems using the existing wiring. Additional features include the ability to detect an open neutral condition or a miswired outlet.